

1 Listing of the Claims:

2 This listing of claims will replace all prior versions,  
3 and listings, of claims in the application using (Original)  
4 (Currently Amended) (New) (Canceled) (Previously Presented)  
5 nomenclature, as recited in the below listing of claims.

6 1. (Currently Amended) A method of broadcasting from a proximal  
7 cache at a proximal internet protocol address (IPA) routing  
8 information for indicating an originator storing web content  
9 data associated with a uniform resource locator (URL) of a web  
10 server at an originating IPA permanently storing the web  
11 content data, the method comprising the steps of:

12 generating at the proximal IPA an originating URL  
13 identifier for indicating the URL,

14 generating at the proximal IPA a sourcing IPA for  
15 indicating the originator,

16 generating at the proximal IPA a destination IPA for  
17 indicating a destination cache,

18 associating at the proximal IPA the sourcing IPA and the  
19 originating URL as the routing information, and

20 transmitting the routing information from the proximal  
21 cache at the proximal IPA to the destination cache at a  
22 destination IPA.

23 listing at the proximal IPA an

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2. (Previously Presented) The method of claim 1 further comprising the steps of:

generating a distance metrics for indicating a web hop distance of a number of the plurality of cooperative web caches through which the URL web content data would be communicated from a source at the sourcing IPA through the plurality of cooperative web caches to the proximal web cache.

3. (Previously Presented) The method of claim 2 wherein,

the originating URL identifier is a proximal URL identifier, the sourcing IPA is the proximal IPA, the proximal cache stores locally the web content data, and

the distance metric is one indicating that one web hop is between the destination cache to the proximal cache.

4. (Previously Presented) The method of claim 2 wherein, the originating URL identifier is a source URL identifier,

the sourcing IPA indicates an IPA location of the source distally storing the web content data,

the distance metric is greater than one indicating a number greater than one of the number of web hops between the destination cache through the proximal cache to the source distally storing the web content data.

5. (Canceled)

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1 6. (Previously Presented) The method of claim 4 wherein,  
2 the source is the web server distally and permanently  
3 storing the web content data, and

4 the sourcing IPA is a web server IPA indicating the IPA  
5 location of the web server.

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8 7. (Original) The method of claim 1 wherein,

9 the originating URL identifier is selected from the group  
10 consisting of,

11 an exact URL identifier being an exact URL comprising a  
12 plurality of URL components,

13 a wildcard URL identifier being a wildcard URL comprising  
14 a plurality of URL components a last URL component of which  
15 being a wildcard component, and

16 a coded URL identifier being a coded URL comprising a  
17 series of hashing codes of a decomposed URL being a  
18 decomposition of the URL selected from the group consisting of  
19 either an exact URL or a wildcard URL each of which comprising  
20 a series of URL components, the series of hashing codes being a  
21 sequence of hashing codes of respective URL segments of a  
22 respective series of increasingly concatenated URL components  
23 of the series of URL components of the URL.

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1 8. (Previously Presented) A method of broadcasting from a  
2 proximal cache at a proximal internet protocol address (IPA) a  
3 routing information for indicating a distal web cache storing  
4 web content data associated with a uniform resource locator  
5 (URL) of a web server permanently storing the web content data,  
6 the proximal web cache is a first one of a plurality of  
7 cooperative web caches, the distal web caches is a last one of  
8 the plurality of cooperative web caches, the method comprising  
9 the steps of:

10       generating at the proximal IPA a URL identifier for  
11 indicating the web content data of the URL stored in the distal  
12 web cache,

13       generating at the proximal IPA the proximal IPA for  
14 indicating the location of the proximal cache,

15       generating at the proximal IPA a destination IPA for  
16 indicating a destination cache,

17       generating at the proximal IPA a distance metric for  
18 indicating a web hop distance of any number of the plurality of  
19 cooperative web caches through which the web content data would  
20 be communicated from the distal web cache to the destination  
21 web cache,

22       associating at the proximal IPA the proximal IPA and the  
23 URL identifier and the distance metric as the routing  
24 information, and

25       transmitting the routing information from the proximal  
26 cache at the proximal IPA to the destination cache at a  
27 destination IPA.

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1 9. (Original) The method of claim 8 wherein,

2 the distance metric is greater than one indicating a  
3 number greater than one of the number of web hops between the  
4 destination cache through the proximal cache to the distal web  
5 cache storing the web content data.

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7 10. (Original) The method of claim 8 wherein, the URL  
8 identifier is selected from the group consisting of,

9 an exact URL identifier being an exact URL comprising a  
10 plurality of URL components,

11 a wildcard URL identifier being a wildcard URL comprising  
12 a plurality of URL components a last URL component of which  
13 being a wildcard component, and

14 a coded URL identifier being a coded URL comprising a  
15 series of hashing codes of a decomposed URL being a  
16 decomposition of the URL selected from the group consisting of  
17 either an exact URL or a wildcard URL each of which comprising  
18 a series of URL components, the series of hashing codes being a  
19 sequence of hashing codes of respective URL segments of a  
20 respective series of increasingly concatenated URL components  
21 of the series of URL components of the URL.

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1 11. (Previously Presented) The method of claim 8 further  
2 comprising the steps of:

3 repeating the URL identifier generating step, proximal IPA  
4 generating step, distance generating step, the associating  
5 step, a plurality of times for generating a plurality of  
6 routing information each comprising a URL identifier and a  
7 respective distance metric, and

8 incorporating the plurality of routing information within  
9 a protocol data structure within a routing packet prior to the  
10 transmitting step, the routing protocol packet comprising the  
11 URL and a respective distance metrics and comprising the  
12 proximal IPA and the destination IPA.

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12. (Currently Amended) A method of broadcasting from a proximal cache at a proximal internet protocol address (IPA) routing information for indicating a distal web cache storing web content data associated with a uniform resource locator (URL) of a web server permanently storing the web content data, the proximal web cache is a first one of a plurality of cooperative web caches, the distal web ~~eaches~~ cache is a last one of the plurality of cooperative web caches, the method comprising the steps of:

storing at the proximal IPA in a routing table a plurality of URL identifiers cross referenced to a respective plurality of distance metrics,

generating at the proximal IPA a URL identifier of the plurality of URL identifiers, the URL identifier for indicating the web content data of the URL stored in the distal web cache,

generating at the proximal IPA the proximal IPA for indicating the location of the proximal cache,

generating at the proximal IPA a destination IPA for indicating a destination cache,

generating at the proximal IPA a distance metric by cross referencing the URL identifier to one of the plurality of URL identifiers and to a respective one of the plurality of distance metrics for indicating a web hop distance of any number of the plurality of cooperative web caches through which the web content data would be communicated from the distal web cache to the destination web cache,

associating the proximal IPA and the URL and the distance metric as the routing information, and

transmitting the routing information in a routing packet within a routing protocol from the proximal cache at the proximal IPA to the destination cache at a destination IPA.

13. (Original) The method of claim 12 wherein,

the originating URL identifier is selected from the group consisting of,

an exact URL identifier being an exact URL comprising a plurality of URL components,

a wildcard URL identifier being a wildcard URL comprising a plurality of URL component a last URL component of which being a wildcard component, and

a coded URL identifier being a coded URL comprising a series of hashing codes of a decomposed URL being a decomposition of the URL selected from the group consisting of either an exact URL or a wildcard URL each of which comprising a series of URL components, the series of hashing codes being a sequence of hashing codes of respective hashing of URL segments of a respective series of increasingly concatenated URL components or the series of URL components of the URL.

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1 14. (Previously Presented) The method of claim 12 further  
2 comprising the steps of:

3 repeating the URL identifier generating step, proximal IPA  
4 generating step, distance generating step, the associating  
5 step, a plurality of times for generating a plurality of  
6 routing information each comprising a URL identifier and a  
7 respective distance metric, and

8 incorporating the plurality of routing information within  
9 a protocol data structure within the routing packet prior to  
10 the transmitting step, the routing protocol packet comprising  
11 the URL and a respective distance metric and comprising the  
12 proximal IPA and the destination IPA.

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14 15. (Original) The method of claim 12 wherein,

15 the storing steps creates a routing table for cross  
16 referencing the plurality of URL identifiers to the plurality  
17 of distance metrics and to one or more juxtaposed cooperative  
18 web caches IPAs of one or more juxtaposed cooperative web  
19 caches of the cooperative web caches, the one or more  
20 juxtaposed cooperative web caches for routing URL identifiers  
21 to distal web caches storing the web content data of the  
22 respective plurality of URL identifiers.

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24 16. (Previously Presented) The method of claim 15 wherein,

25 the proximal cache and the one or more juxtaposed  
26 cooperative web caches being within a local group of  
27 cooperative web caches.

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1 17. (Previously Presented) The method of claim 16 wherein,  
2 the proximal cache is within one or more local groups of  
3 cooperative web caches.

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5 18. (Previously Presented) The method of claim 1 wherein,  
6 the routing information is communicated in a packet  
7 comprising a routing item associating the sourcing IPA and the  
8 originating URL.

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10 19. (New) The method of claim 1 further comprising the step of,  
11 storing in the destination cache at the destination IPA in  
12 a forwarding and routing table the association between the URL  
13 and the source IPA, the forwarding table for determining the  
14 source IPA from a URL request for forwarding and routing a  
15 request for web content data to the source IPA.

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18 20. (New) The method of claim 8 further comprising the step of,  
19 storing in the destination cache at the destination IPA in  
20 a forwarding and routing table the association between the URL  
21 and the source IPA, the forwarding table for determining the  
22 source IPA from a URL request for forwarding and routing a  
23 request for web content data to the source IPA.

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